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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/014,848	12/11/2001	James Richard Graham	W00536/70005 PCL	1841
7590 05/17/2004			EXAMINER	
PETER C. LANDO C/O LOWRIE, LANDO & ANASTASI, LLP RIVERFRONT OFFICE PARK ONE MAIN STREET CAMBRIDGE, MA 02142			LANGEL, WAYNE A	
			ART UNIT	PAPER NUMBER
			1754	

DATE MAILED: 05/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.



**UNITED STATES DEPARTMENT OF COMMERCE**  
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SERIAL NUMBER	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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100148A8

EXAMINER
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ART UNIT	PAPER NUMBER
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DATE MAILED:

This is a communication from the examiner in charge of your application.  
COMMISSIONER OF PATENTS AND TRADEMARKS

☐ This application has been examined ☒ Responsive to communication filed on 4-8-04 ☐ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s),        days from the date of this letter.  
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

**Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:**

- |   |   |
|---|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited by Examiner, PTO-892. | 2. <input type="checkbox"/> Notice of Draftsman's Patent Drawing Review, PTO-948. |
| 3. <input checked="" type="checkbox"/> Notice of Art Cited by Applicant, PTO-1449.      | 4. <input type="checkbox"/> Notice of Informal Patent Application, PTO-152.       |
| 5. <input type="checkbox"/> Information on How to Effect Drawing Changes, PTO-1474.     | 6. <input type="checkbox"/> _____   |

**Part II SUMMARY OF ACTION**

1. ☒ Claims 1-45 and 55-72 are pending in the application.  
Of the above, claims 5-37 are withdrawn from consideration.
2. ☐ Claims \_\_\_\_\_ have been cancelled.
3. ☐ Claims \_\_\_\_\_ are allowed.
4. ☒ Claims 1-4, 38-45 and 55-72 are rejected.
5. ☐ Claims \_\_\_\_\_ are objected to.
6. ☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.
7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8. ☐ Formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on \_\_\_\_\_. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).
10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on \_\_\_\_\_, has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed \_\_\_\_\_, has been ☐ approved; ☐ disapproved (see explanation).
12. ☐ Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. \_\_\_\_\_; filed on \_\_\_\_\_.
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other

EXAMINER'S ACTION

Upon reconsideration, claims 62-65 are considered to be linking between the inventions of Groups I and II.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --  
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 62-65 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Japanese 7-313,867, for the reasons given in the last Office action.

The Graham Declaration filed under Rule 132 on April 8, 2004 has been considered, but is not convincing of error in the

rejection. The Declaration provides evidence that the composition of Japanese '867 has a hydrogen sulfide breakthrough capacity of only 0.07 grams hydrogen sulfide per cubic centimeter carbon, and states in paragraph 12 bridging pages 3 and 4 that the metal oxide is deposited on the surface of the activated carbon within the pore structure of the finished product, and that the reference provides no teaching of preparing an activated carbon-metal oxide matrix wherein the metal oxide does not occupy and reduce the overall pore volume of the activated carbon. However there is no evidence on record showing that the process steps recited in applicant's claim 62 would necessarily form a composition which is distinguishable from that disclosed in Japanese '867.

Claims 1-4, 62-65, 69, 71 and 72 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Wennerberg '488 (newly cited). Wennerberg '488 discloses a high surface area, porous active carbon matrix containing a substantially uniform dispersion of a metal or metal-containing material. (See, for example, the Abstract and column 3, line 67 - column 4, line 29.) Wennerberg '488 specifically discloses at column 8, lines 32-55 and column 22, lines 35-51 that the metal-containing material may be in the form of a metal oxide. Applicant's argument, that the structure

of the activated carbon-metal oxide matrix of the present invention provides a surprisingly high hydrogen sulfide breakthrough capacity and is advantageous because the highly dispersed metal oxide does not occupy and reduce the overall pore volume of the activated carbon, is not convincing. It would be expected that the carbon matrix of Wennerberg '488 would also have a high hydrogen sulfide breakthrough capacity and that the metal oxide would not occupy or reduce the overall pore volume of the activated carbon, since Wennerberg '488 specifically discloses in the Abstract and at column 4, lines 20-29, for example, that the composition comprises a substantially uniform dispersion of the metal oxide in the porous carbon matrix.

Claims 38-45, 55-61, 66-68 and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wennerberg '488 as applied to claims 1-4, 62-65, 69, 71 and 72 above, and further in view of Japanese 7-313,867. It would be obvious from Japanese 7-313867 to employ the composition of Wennerberg '488 for removing an odorous compound such as hydrogen sulfide from a gaseous stream, since Wennerberg '488 teaches at column 12, lines 8-15 that the composition is useful for all the uses to which prior art active carbon compositions have been put, for example, as sorbents in such applications as gas and vapor adsorption, and Japanese 7-313867 discloses in paragraph [0004] of the English

translation that active carbon matrices are useful for absorbing malodorous substances such as ammonia and hydrogen sulfide.

Claims 1-4, 38-45, 55-61 and 66-68 are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no "description support" for the carbon-metal oxide matrix having a breakthrough capacity of "at least about 0.26 gH<sub>2</sub>S/ccC". Applicant's argument, that this limitation is supported in the specification as filed, for example at page 9, lines 9 and 10, is not convincing since that portion of the specification recites that the hydrogen sulfide breakthrough capacity was 0.26 gH<sub>2</sub>S/ccC, as opposed to "about 0.26" gH<sub>2</sub>S/ccC. The word "about" should be deleted from this term to avoid this rejection.

Claim 71 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is indefinite as to what would constitute an "activate carbon-metal oxide matrix". The word "activate" should be changed to --activated-- to avoid this rejection.

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Claim 70 is rejected under 35 U.S.C. § 112 paragraph 5 in constituting a multiple dependent claim which fails to depend from the parent claims in the alternative only. The word --one-- should be inserted after "any" in line 1 of claim 70 to avoid this rejection.

Wennerberg '641, Wennerberg '665 and Tachibana are made of record for disclosing porous, metal-containing activated carbons.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wayne A. Langel whose telephone number is (571) 272-1353. The examiner can normally be reached on Monday through Friday from 8 A.M. to 3:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman, can be reached on (571) 272-1358. The fax phone number for this Group is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either private PAIR or public PAIR. Status information for unpublished applications is available through private PAIR only. For more information about the PAIR system,

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see <http://pair-direct.uspto.gov>. Should you have questions on access to the private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WAL:cdc

May 12, 2004

*Wayne A. Langel*  
WAYNE A. LANGEL  
PRIMARY EXAMINER